UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *12 September 2008*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,5-7,9 and 10* is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,5-7,9 and 10* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *02 June 2006* is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a) ☒ All   b) ☐ Some *   c) ☐ None of:

    1. ☒ Certified copies of the priority documents have been received.

    2. ☐ Certified copies of the priority documents have been received in Application No. _____.

    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
      Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
      Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

In the Amendment filed on September 12, 2008, claims 2-4, 8, and 11-18 are

canceled; thus claims 1, 5-7, 9-10 are pending and have been examined on the merit.

The Amendment has been fully considered.

Drawings

1.   Figures 1-2 should be designated by a legend such as --Prior Art-- because only

that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in

compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

abandonment of the application. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

   1.   Determining the scope and contents of the prior art.

2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

4.   **Claims 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over

Sethuram et al. (6,765,928) in view of Wakai et al. (2004/0208554).

Regarding claim 1, Sethuram et al. disclose a synchronous digital hierarchy

tributary module supporting multiple service processing, including a Synchronous Digital

Hierarchy (SDH) tributary processing unit **(see Fig. 8; SONET/SDH engine (col. 5**

lines 49-55)) and service processing units; wherein there are at least two service

processing units **(see Fig. 6E; services receive and transmit byte engines for**

services of various data types (col. 5 lines 41-43)) connected with the SDH tributary

processing unit respectively, for mapping and unmapping corresponding service signals

(see col. 7 lines 12-40 and Fig. 8; various type of services are mapped into SHD

SPE for transmission and SDH SPE can be demapped to the native data format

type for according service); the SDH tributary processing unit is for multiplexing and

demultiplexing multiple service signals in an SDH signal **(see col. 5 lines 51-55 and**

col. 17 lines 28-35; the SDH transmit byte engine multiplexes service data

received from multiple services for transmission into the SDH communication

system as a SONET/SDH frame. See col. 11 lines 44-50 for demultiplexing); and

wherein the SDH tributary processing unit separates out the service signals

corresponding to different service processing units according to different time slots

corresponding to the SDH signals of different services **(see col. 6 lines 52-58;**

segregate information within the SDH data stream for each service which each

service is transmitted at appropriate time slots within the SDH data stream).

However, Sethuram et al. may not explicitly teach wherein the SDH tributary processing

unit and the at least two service processing units are disposed on one board; the

tributary module further includes a multiple service cross processing unit which is used

to implement interconnection among different services, each service processing unit

being connected to a local interface through the multiple service cross processing unit.

Wakai et al. from the same or similar field of endeavor teach wherein the SDH tributary

processing unit and the at least two service processing units are disposed on one board

(see Fig. 7; plurality of processing units 233 and multiplexer/demultiplexer

232/231 are disposed on one interface 230); the tributary module further includes a

multiple service cross processing unit **(Fig. 7; switch 235)** which is used to implement

interconnection among different services, each service processing unit being connected

to a local interface through the multiple service cross processing unit **(Fig. 7; each**

processing unit 233 is connected to packet line interfaces 234 thru the switch

235). Thus, it would have been obvious to one of ordinary skill in the art at the time of

the invention to employ the teaching of Wakai et al. in the teaching of Sethuram et al. to

provide an interface/board for integrating a plurality of processing units and a

mux/demux module in a single platform. One of ordinary skill in the art at the time the

invention was made would have motivated to do so to improve space as multiple

components can be built into a single board. One of ordinary skill in the art would also

have motivated to include the switch as taught by Wakai et al. to cross-connect low

speed lines with each processing unit to switch a particular service to the correct

processing unit. One of ordinary skill in the art would have motivated to do so to

appropriately transmit data to destined unit for processing.

5.   **Claims 5 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Sethuram et al. (6,765,928) in view of Wakai et al. (2004/0208554), and further in view

of Shimbashi et al. (6,798,779).

        Regarding claim 5, Sethuram et al. further teach the synchronous digital

hierarchy tributary module supporting multiple service processing, wherein a SDH

equipment node time-division multiplexes multiple service SDH signals into one SDH

signal **(see col. 4 lines 58-67 and col. 5 lines 52-55 and col. 6 lines 54-55;**

multiplexing service data from multiple services into SONET/SDH frames/streams

using appropriate time slots). However, Sethuram et al. and Wakai et al. may not

explicitly teach a cross module for performing multiplexing step. Shimbashi et al. from

the same or similar field of endeavor teach a crossconnect or switching circuit to

perform arrangements of VT signals and ATM to appropriate time slot **(see Fig. 8)**.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the

invention to employ a crossconnect to multiplex multiple data services into a SDH

stream. One of ordinary skill in the art at the time would have motivated to do so to

convert multiple services into a SDH stream for faster transmission.

        Regarding claim 6, Sethuram et al. further teach a synchronous digital hierarchy

communication supporting multiple service processing, wherein the services to be sent

from the local to the SDH side are mapped by the service processing units respectively

(see col. 17 line 65 thru col. 18 line 16 and Fig. 8; Each type of services are

mapped into STS frames for transmission) and sent to the SDH tributary processing

unit for multiplexing **(see col. 5 lines 51-55; the SDH transmit byte engine**

multiplexes service data received from multiple services for transmission into the

SDH communication system as a SONET/SDH frame. Also see col. 17 lines 28-35),

different services being multiplexed in different time slots **(see col. 6 lines 52-58)**.

Shimbashi et al. further teach the cross module of the SDH equipment node transmits

the signals of different time slots to corresponding line modules or other tributary

modules **(see Fig. 8; VT signals are arranged to time slots by crossconnect or**

switching. See Fig. 15, signals are transmitted to interface modules IF). Thus, it

would have been obvious to one of ordinary skill in the art at the time of the invention to

employ the teaching of Shimbashi et al. in the teaching of Sethuram et al. and Wakai et

al. One of ordinary skill in the art would have motivated to utilize the crossconnect

taught by Shimbashi et al. to transmit signals of different time slots to output the signals.

The motivation for doing so is to provide efficient time for transmitting SDH stream of

different data services.

6.   **Claims 7, 9, and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Sethuram et al. (6,765,928) in view of Shimbashi et al. (6,798,779) and Wakai et

al. (2004/0208554).

   Regarding claim 7, Sethuram et al. disclose a SDH equipment node using the

synchronous digital hierarchy tributary module, including a plurality of local interfaces

(see col. 16 line 66 thru col. 17 line 2; services engine interfaces and processes M

streams of variable data types), wherein the SDH tributary module comprises an SDH

tributary processing unit **(see Fig. 8; SONET/SDH engine (col. 5 lines 49-55))** and at

least two service processing units **(see Fig. 6E; services receive and transmit byte**

engines for services of various data types (col. 5 lines 41-43)) connected with the

SDH tributary processing unit respectively , the service processing unit being for

mapping and unmapping corresponding service signal **(see col. 7 lines 12-40 and Fig.**

8; various type of services are mapped into SHD SPE for transmission and SDH

SPE can be demapped to the native data format type for according service), and

the SDH tributary processing unit being for multiplexing and demultiplexing multiple

service signals in an SDH signal **(see col. 5 lines 51-55 and col. 17 lines 28-35; the**

SDH transmit byte engine multiplexes service data received from multiple

services for transmission into the SDH communication system as a SONET/SDH

frame. See col. 11 lines 44-50 for demultiplexing); and wherein the SDH tributary

processing unit separates out the service signals corresponding to different service

processing units according to different time slots corresponding to the SDH signals of

different service **(see col. 6 lines 52-58; segregate information within the SDH data**

stream for each service which each service is transmitted at appropriate time

slots within the SDH data stream). But, Sethuram et al. may not explicitly teach a

plurality of line modules, a cross module connected with the line modules respectively

and a plurality of SDH tributary modules connected with the cross module respectively.

However, Shimbashi et al. from the same or similar field of endeavor teach a plurality of

line modules **(see Fig. 15, interface modules IF 152-1 thru 152-m)**, a cross module

connected with the line modules respectively **(see Fig. 15, IF modules connected to**

crossconnecting units) and a plurality of SDH tributary modules connected with the

cross module respectively **(see Fig. 15, STS mux and dmux)**. Thus, it would have

been obvious to one of ordinary skill in the art at the time of the invention to use the

system of Shimbashi et al. in the system taught by Sethuram et al. One of ordinary skill

in the art would have motivated to cross module, IF modules taught by Shimbashi et al.

to perform STS crossconnect operation. The motivation for doing so is to accommodate

various type of services and to handle various data information in an STM format **(see**

Shimbashi et al. col. 1 lines 14-45). However, Sethuram et al. and Shimbashi et al.

may not explicitly teach wherein the SDH tributary processing unit and the at least two

service processing units are disposed on one board the tributary module further

includes a multiple service cross processing unit which is used to implement

interconnection among different services, each service processing unit being connected

to a local interface through the multiple service cross processing unit. Wakai et al. from

the same or similar field of endeavor teach wherein the SDH tributary processing unit

and the at least two service processing units are disposed on one board **(see Fig. 7;**

plurality of processing units 233 and multiplexer/demultiplexer 232/231 are

disposed on one interface 230); the tributary module further includes a multiple

service cross processing unit **(Fig. 7; switch 235)** which is used to implement

interconnection among different services, each service processing unit being connected

to a local interface through the multiple service cross processing unit **(Fig. 7; each**

processing unit 233 is connected to packet line interfaces 234 thru the switch

235). Thus, it would have been obvious to one of ordinary skill in the art at the time of

the invention to employ the teaching of Wakai et al. in the teaching of Sethuram et al.

and Shimbashi et al. to provide an interface/board for integrating a plurality of

processing units and a mux/demux module in a single platform. One of ordinary skill in

the art at the time the invention was made would have motivated to do so to improve

space as multiple components can be built into a single board. One of ordinary skill in

the art would also have motivated to include the switch as taught by Wakai et al. to

cross-connect low speed lines with each processing unit to switch a particular service to

the correct processing unit. One of ordinary skill in the art would have motivated to do

so to appropriately transmit data to destined unit for processing.

Regarding claim 9, Sethuram et al. further teach the synchronous digital

hierarchy tributary module supporting multiple service processing, wherein a SDH

equipment node time-division multiplexes multiple service SDH signals into one SDH

signal **(see col. 4 lines 58-67 and col. 5 lines 52-55 and col. 6 lines 54-55;**

multiplexing service data from multiple services into SONET/SDH frames/streams

using appropriate time slots). Shimbashi et al. further teach a crossconnect or

switching circuit to perform arrangements of VT signals and ATM to appropriate time

slot **(see Fig. 8)**. Thus, it would have been obvious to one of ordinary skill in the art at

the time of the invention to employ a crossconnect of Shimbashi et al. to multiplex

multiple data services into a SDH stream. One of ordinary skill in the art at the time

would have motivated to do so to convert multiple services into a SDH stream for faster

transmission.

Regarding claim 10, Sethuram et al. further teach a synchronous digital

hierarchy communication supporting multiple service processing, wherein the services

to be sent from the local to the SDH side are mapped by the service processing units

respectively **(see col. 17 line 65 thru col. 18 line 16 and Fig. 8; Each type of

services are mapped into STS frames for transmission)** and sent to the SDH

tributary processing unit for multiplexing **(see col. 5 lines 51-55; the SDH transmit

byte engine multiplexes service data received from multiple services for

transmission into the SDH communication system as a SONET/SDH frame. Also

see col. 17 lines 28-35)**, different services being multiplexed in different time slots **(see

col. 6 lines 52-58)**. Shimbashi et al. further teach the cross module of the SDH

equipment node transmits the signals of different time slots to corresponding line

modules or other tributary modules **(see Fig. 8; VT signals are arranged to time slots

by crossconnect or switching. See Fig. 15, signals are transmitted to interface

modules IF)**. Thus, it would have been obvious to one of ordinary skill in the art at the

time of the invention to employ the teaching of Shimbashi et al. in the teaching of

Sethuram et al. and Wakai et al. One of ordinary skill in the art would have motivated to

utilize the crossconnect taught by Shimbashi et al. to transmit signals of different time

slots to output the signals. The motivation for doing so is to provide efficient time for

transmitting SDH stream of different data services.

Response to Arguments

7.   Applicant's arguments filed September 12, 2008 have been fully considered but

they are not persuasive.

8.   On page 7 of the Applicant's Response regarding Sethuram et al. reference,

Applicant argues that Sethuram et al do not disclose or suggest demultiplexing the

service signals corresponding to different service processing units according to different

time slots. However, Examiner respectfully disagrees since Sethuram et al. disclose

segregating information within the SDH data stream for each service which each service

is transmitted at appropriate time slots within the SDH data stream **(see col. 6 lines 52-**

58) and services byte engines demultiplex SONET/SDH fames/streams into service

data for transmission to the multiple services **(see col. 5 lines 58-62)**.

9.   On page 10 of the Applicant's Response, Applicant amends claim 1 to include

"wherein the SDH tributary processing unit and the at least two service processing units

are disposed on one board"; this limitation has been addressed in the rejection above.

Conclusion

10.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOANG-CHUONG Q. VU whose telephone number is (571) 270-3945. The examiner can normally be reached on Monday through Thursday 8:30 AM to 5:00 PM EST. and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, EDAN ORGAD can be reached on (571) 272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. V./   12/15/08
Examiner, Art Unit 2419

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